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ABSTRACT

Among specific questions to be answered in this study were: (1) is it possible tc train students to become better listeners, (2) at what grade level is the training most effective, and (3) assuming skills exist, in what order are listening skills learned? Subjects were students from grades two, five, eight and eleven. A total of 11 listening skills were set up, going from simple to complex. Three questions tested each skill. Some classes received training, others did not. Results showed that training in listening was most effective at grades two and five, with very little impact at grades eight and eleven. There appears to be a hierarchy of listening skills which is most discernable at grades two and five. When students reach grades eight and eleven, there is a leveling off of skill performance at the upper percentage of success levels. This implies an understanding of these skills which training cannot increase appreciably. (KJ)

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LEARNING TO LISTEN: A BROAD DEMONSTRATION STUDY*

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Is it possible to improve listening skills through training? Research to date has arrived at completely contradictory conclusions. For example, using an analysis of covariance model performed on a test given to fifth grade students in a controlled listening project Canfield (1961) reported that there was a failure to demonstrate an improvement of listening skills for students in an experimental condition when compared to students in a control group. At the same time Petrie (1961), using 712 college freshmen, found that those who receive formal training in listening show no greater improvement in listening skills than a control group having no formal training. Exploring a related question, Reddin (1968) reported similar results. Reddin's aim was to determine whether instruction in listening which utilized various types of approaches and materials would have positive effects upon the development of reading skills and critical thinking. He noted that an experimental group of 192 students did not differ significantly from a control group of 189 students in identifying the main idea of a communication, nor did they differ in gain scores on a critical thinking test

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following the period of instruction in listening.

A complete reversal of these conclusions was arrived at by Fawcett (1963). Once again utilizing analysis of covariance procedures she showed that for fourth, fifth and sixth graders it was possible to improve general listening ability through classroom instruction. Her conclusions are supported by the research of Lundsteen (1963) who studied the effect of listening instruction on three basic listening skills. Using fifth and sixth graders, she formed an experimental and control group at each grade level. After training the experimental group in the use of these three critical listening skills, she tested both groups and found a statistically significant difference between the performance of the two groups in favor of the experimental students.

Although a major purpose of our study was to further explore the effects of training upon listening skills, a parallel concern was to explore the nature of the listening skills themselves. The following specific questions were investigated:

(1) Is it possible to train students to become better listeners?

(2) At what grade level is the training most effective?

(3) If in the listening process certain skills are necessary for an understanding of certain basic concepts, what are these skills?

(4) Assuming these skills exist, is there a particular order in which these skills are learned?

Subjects and Variables

Students from grades 2, 5, 8, and 11 in Alameda County, California served as the subjects in the study. Fifteen classes

were volunteered at grade 2, nineteen at grade 5, eleven at grade 8 and nine at grade 11. Only teachers expressing an interest in the study were asked to participate.

At each grade level classes were subdivided into either a high or a low socio-economic status (SES) category. Because it was physically impossible to break up classes for training purposes, the training and no training conditions were assigned at random to intact classrooms within each SES level. Since the number of classes at each grade level was large, it was hoped that random assignment to the treatment and no treatment conditions would help to mitigate any differences which might exist between the two groups. Within each classroom, sex was also controlled as a variable of interest.

Criterion Test

A test based on eleven comprehensive language skills was developed by Dr. Marie Hackett for grades 2, 5, 8 and 11. A hierarchy of these skills from simple to complex was created on the basis of a pilot study carried out in Alameda County during the 1968 school year. Following is a description of the eleven skills ordered from the simple to the complex.

(1) Inferring connotative word meaning

Having listened to a passage containing unfamiliar words (easily pronounceable, nonsense words), the student is able to derive the suggested meaning of the word from the passage.

(2) Identifying mood

Having listened to a passage, the student is able to choose the mood represented by the passage.

(3) Providing examples by details

Having listened to a short passage, the student is able to choose the detailed examples it contains, when given the main idea.

(4) Reinstating a sequence of ideas

Having listened to a passage containing a sequence of ideas, the student is able to reproduce an item in sequence.

(5) Identifying the stated main idea

Having listened to a short passage (from two to five sentences) containing a main idea, the student is able to chose the principal thought being communicated.

(6) Predicting the sequence of thought

Having listened to a passage containing a sequence of ideas without a completion or conclusion, the student will be able to choose the sort of idea it seems likely might be presented next.

(7) Inferring speaker's purpose

Having listened to a passage, the student is able to derive the speaker's purpose expressed in the passage.

(8) Applying standards to judge persuasion

Having listened to a passage of the persuasive sort, the student will be asked to identify the class of device used by the speaker in persuasion (card-stacking, band-wagon, testimonial, name calling, repetition, and logical argument).

(9) Inferring the main idea from specifics

Having listened to a passage which is terminated before the main idea is presented, the student is able to summarize specific ideas (examples) leading to the inference of the main idea.

(10) Judging logical validity

Having listened to a passage, the student is able to judge correct and incorrect deductive logic exhibited in the passage.

(11) Identifying sequence ambiguities

Having listened to a passage containing an ambiguity in the sequence of ideas, the student is able to recognize the irrelevant idea.

Three questions were constructed to measure each skill. Thus, the actual test for each grade consisted of a total of 33 questions. From among four alternatives, the student had to select the one he believed to be the best answer to the question.

The scoring of the test was based upon each triplet of questions making up a listening skill. A student would be scored as knowing one of the eleven listening skills if he made two or three correct responses in the set of three questions designed to measure knowledge of that skill. On the other hand, if a student made zero or one correct response in the triplet, he was scored as not having learned the skill. Thus, total test scores ranged from a low of zero to a high of eleven and represent a direct measure of the number of listening skills possessed by the student.

Training

Students in the experimental condition were given training by means of pre-recorded tapes which were played for the students in regular English, Language Arts, or Reading classes. These tapes contained 22 sets of lessons and two review sessions played over a 12 to 14 week training period. The 22 lessons increased in difficulty as progression was made through the eleven hierarchical skills. The following example illustrates what the subjects in the second grade listening condition heard on their fourth training lesson.

> Boys and girls, I am going to tell you some stories today. After each one, I will read four sentences to you about the stories. You will circle the number of the sentence that tells when something happened in the story. Here is an example to help you learn what to do.
>
> Jimmy went into a store for a strawberry ice cream cone. When he left, a man bumped into him. The ice cream fell and Jimmy's dog caught it in his mouth. Then the man bought Jimmy some more ice cream.
>
> Listen to the next four sentences. Circle the number of the sentence that tells what happened after Jimmy's ice cream dropped.
>
> 1. Jimmy went into the store.
> 2. A man bumped into Jimmy.
> 3. The man bought Jimmy another ice cream cone.
> 4. Jimmy's dog caught the ice cream.
>
> Did you circle number four? After Jimmy's ice cream fell, his dog caught it. When the man bumped into him, the ice cream fell and Jimmy's dog caught it. Then the man bought another cone. We are going to stop here so that you can ask your teacher any questions you have about the lesson.

As this example illustrates, each student was forewarned as to the type of skill to be taught in the lesson before presentation of the taped communications. To aid the learning process, immediate feed-back was supplied to the students following three of

the four passages in the sequence. Thus, positive verbal reinforcement followed the completion of the passages. Opportunities to learn from errors were possible because the inappropriateness of incorrect responses was discussed. The fourth story was presented in an open-ended fashion in that the teacher's manual or tape did not contain a definite response. Instead, students were encouraged to volunteer responses during a subjective inquiry time period.

Statistical Design

Three variables were controlled: a) socio-economic status (SES), b) sex, and c) training. There were two levels associated with each of these independent variables. A posttest-only control group design (Campbell and Stanley, 1963) for a nested analysis of variance model was used to analyze the data. The training variable was nested within the sex variable which in turn was nested within SES levels. Such a design enabled us to look at SES differences, sex differences within SES levels and the effect of training within both sex and SES categories.

Analysis of Grade 2 Data

Table 1 gives the nested analysis of variance results for the students in grade 2 and Table 1A gives the skill averages. The calculations show that the differences between scores in the high and low SES categories were not significant nor were those between boys and girls. Table 1A indicates that high SES students averaged 5.7 correct skills while low SES pupils answered 5.6 skills correctly. Males mastered 5.6 skills while females averaged 5.7. On the other hand, returning to Table 1, we see that there was a significant difference between those who received training and those

in the no training condition. These differences were quite pronounced for both the high and low SES students. For example, according to Table 1A, trained boys in both the high and low SES categories answered on the average 6.3 skills while untrained boys in the high SES group averaged 4.9 skills and their low SES counterpart mastered only 4.7 skills. Among the high SES girls, the trained subjects averaged 6.9 skills while the untrained girls mastered 5.1 skills. For the low SES girls, the trained and untrained groups averaged 6.4 and 4.0 skills respectively. The results appear to indicate that training was effective for the second grade students.

Analysis of Grade 5 Data

The analysis of variance for grade 5 data is presented in Table 2, the skill averages being reported in Table 2A. As was true for second grade pupils, fifth graders also show no sex differences. As Table 2A indicates, boys and girls each averaged around 8.6 skills on this form of the listening test. However, unlike the second grade results, the inclusion of SES provides a major source of variance for these pupils. High SES students averaged 8.8 correct skills while the low SES group answered only 8.2 skills correctly. Whereas all four training versus no training comparisons are in the direction favoring training, only the differences between high SES boys and girls and low SES boys are significant (Table 2). The difference for the low SES girls is not significant even though it is in the same direction as the others. The averages for the four trained groups are 9.1, 9.0, 9.0 and 8.5 while the corresponding averages for the untrained groups are 8.4, 8.2, 7.4 and 7.9 respectively (Table 2A). If one ignores SES and sex, the untrained pupils averaged 8 correct skills while their trained counterpart mastered

9 skills correctly. These results support the Lundsteen study discussed earlier.

Analysis of Grade 8 Data

The results of the analysis of variance on the eighth grade data are summarized in Table 3, with the skill averages reported on Table 3A. None of the independent variables of interest show a significant difference. Table 3A reveals that the means for students broken by SES each are around 8.6. When the division is made along sex lines, both boys and girls average 8.6 correct skills. Training does not appear to be effective since both the trained and untrained groups average 8.6 skills. The only significant result occurs with low SES girls. Low SES girls who have had training in listening do score significantly higher than the corresponding untrained girls. Their mean scores on the listening test are 9.1 and 8.1 respectively. Total inspection of the results tends to reflect a lack of training effectiveness for eighth grade students relative to these eleven basic skills.

Analysis of Grade 11 Data

The basic analysis of the eleventh grade scores is presented in Tables 4 and 4A. High SES students with a mean of 9.0 score higher on the listening test than low SES students with a mean of 7.8. The results indicate that, while training was effective for males in the high SES category, it was not for males in the low SES group. As a matter of fact, the untrained low SES boys had higher scores on the listening test than the corresponding trained males. It is possible that the deviation of these results is a function of

the fact that fewer classes volunteered for the experiment at the eleventh grade level. Another deviation of this data from other grade levels tested was the recording of a significant difference between the performance of boys and girls in the high SES category. The mean for the boys was 8.7 skills and for the girls was 7.9 skills.

Hierarchy of Listening Skills

Following the experiment relative to the instructional effectiveness of training in listening, an attempt was made to determine whether a hierarchy existed over the eleven skills. For example, if skill 1, inferring connotative word meaning, was basic for an understanding of skills 2 through 11, then the proportion of students acknowledging comprehension of this skill should be as large or larger than the proportion answering skills 2 through 11 correctly. Those skills which are most germane to a clear understanding of auditory material should be mastered early while more difficult skills would not be mastered until later in the student's development. Since sex was not found to be a significant variable in the original analysis, only the SES and training variables were isolated for the hierarchical analysis. This represents four categories at each grade level: (High SES, Untrained), (High SES, Trained), (Low SES, Untrained), and (Low SES, Trained). Since training could cause wide fluctuation in skill development we concentrated on the untrained group as a basis for developing a skill hierarchy.

The statistical analysis of the hierarchy is based on the nonparametric Cochran Q-statistic (Hays, 1963), which is a nonparametric analog to the classical F-test of the analysis of variance

model with repeated measures on the same subject. This test differs from the standard analysis of variance F-test with K repeated observations per student in that the criterion variable of the Cochran Q can only assume the values of 0 or 1 depending upon whether or not a student demonstrates knowledge of the various listening skills. When the number of students is large, the Cochran Q-statistic can be related to the Chi-square distribution with degrees of freedom, K-1, equal to one less than the total number of skills in the hierarchy. In this case, K-1 = 10.

The basic hypothesis tested by the Cochran Q-statistic is that the proportion of students who demonstrate knowledge of a skill is constant across all eleven skills. If a hierarchy of skills exists, then the proportions should not be equal and a large value of Q should be observed. However, Q could be large even if a specified hierarchy does not exist. But, since a hierarchy could not exist if Q were small, it follows that a large value of Q is a necessary, but not a sufficient requirement for the existence of a specified hierarchy. In any case, a large value of Q indicates that some ordering of skills exists; it need not be the ordering established on the basis of the pilot study undertaken during 1968.

The 99th percentile of the Chi-square distribution with 10 degrees of freedom is equal to 23.21 (Owen, 1962). Any value of Q exceeding this number is indicative of a significant difference in the percentage of students who show a knowledge of the various skills across the entire hierarchy. Should the percentage of correct responses be constant across all skills, Q would be close to zero and no hierarchy would exist. From the Q calculations at each grade level, it is easily seen that all Qs fall into the significance region (See

Tables 5 through 8). Thus, the proportion of correct skill responses is not constant over the eleven skill hierarchy.

Hierarchy Analysis for Grade 2

Success percentages over the eleven hierarchical skills are presented in Table 5. The profile of attainment for the trained and untrained pupils within SES levels is given in Figure 1.

From the profile it is evident that training in listening was very successful at Grade 2. Trained pupils show a superior rate of performance to untrained pupils on every skill except skill 10 which is judgment of logical validity. This situation, which was true for both high and low SES pupils, would lead one to question the validity of the training material relative to this skill. The training program proved most successful in improving pupil performance for skills 1, 2, 3, 4, 5, 8 and 11. On the other hand, it was least effective for skills 6, 7, 9 and 10.

Viewing the overall picture, we find that the most frequently known skill for untrained high SES students was skill 2, which was answered correctly by 70.7 percent of the pupils. This was followed in difficulty by skill 7, with 62.6%, and skill 4, with 59.6%. The two most difficult skills for the untrained high SES pupils were skills 10 and 11 with 29.3% and 12.1% respectively. For the most part, the order of skills for the untrained high SES pupils repeats itself for the untrained low SES pupils. The Spearman rank order correlation coefficient between the two ordered sets of skills is given by $r = 0.93$. This implies a very high state of agreement between the two sets of rankings.

Hierarchy Analysis for Grade 5

The percentage of correct skill responses for trained and untrained students over high and low SES levels is presented in Table 6. The profile of these percentages is depicted in Figure 2.

As was the case with the results of grade 2, skill 2 was the most frequently known skill for both high and low SES students. The profile of skill success for untrained students in the fifth grade is quite similar to the corresponding profiles for second graders. The degree of success, however, was quite distinct for the two grades: the average degree of skill success at the fifth grade level was at least 30% greater than at grade 2. This result held across both SES levels. It is our conjecture that when students reach the fifth grade, they already possess a majority of the skills being discussed in this paper. This would also suggest that while training is effective in grade 2, it is not a prerequisite for the subsequent attainment of those skills, with the possible exception of skill 11.

This implication is supported by the following results. Among high SES untrained students the only skills that were not possessed by more than 75% of the students were skill 8, applying standards to judge persuasion; skill 10, judging logical validity; and skill 11, identifying sequence amiguities. These skills also proved to be among the most difficult for untrained second graders and untrained low SES fifth graders. By the time students entered the fifth grade, it appears that most have little trouble with skills 1, inferring connotative word meaning; 2, identifying mood; 3, providing examples by details; and 9, inferring main ideas from specifics. Both high and low SES students at the fifth grade level answered these skills correctly at least 75% of the time.

To obtain a measure of the relationship between skill success of high and low untrained students, Spearman's rank order correlation coefficient was computed and found to be 0.91. Once again there is a strong relationship between skill orderings for high SES and low SES students. While the rank order of the skills is not exactly the same for the two grades, they are close enough to suggest that the order of difficulty of the skills is quite uniform in the second and fifth grades.

While the training program appeared to be very effective in the second grade, this effectiveness was not as dramatic at the fifth grade. The major reason for this lack of effectiveness may be attributed to the fact that most of the students already possessed the required skills. From the appearance of the profiles, it would not be an effective use of classroom time to continue to teach skills 1, 2 and 3 at this grade level since more than 85% of the students already possess the skills. However, as in grade 2, training continued to be significant for the mastery of skill 11.

It should also be noted that training tended to reduce the slope of the hierarchy profiles, suggesting that students tend to approach a uniform performance on each of the skills. In the long run this is the desired outcome. Since this reduction is expected, the major analysis of the hierarchy has been based on the untrained and not the trained students.

Hierarchy Analysis for Grade 8

The percentage of students in grade 8 showing a knowledge of the eleven skills is given in Table 7. The profile of percentages is illustrated in Figure 3. Among the high SES untrained students, only skill 11, identifying sequence ambiguities, had not been mastered

by at least 75% of the students. The low SES students were not quite as successful, but all skills except skill 11 were mastered by at least 65% of the students. Skills 4, 5, 7, and 11 were missed by more than 25% of the low SES students. This agrees with the findings for the fifth grade where skills 4, 5, 6, 7, 8, 10, and 11 were missed by more than 25% of the low SES students. Note that by moving from the fifth to the eighth grade, skills 6, 8, and 10 could now be handled by nearly all students.

At this grade level there does not appear to be a common hierarchy of skills for high and low SES students. Spearman's rank order correlation coefficient between skill orderings for high and low SES untrained students is 0.60. This lack of agreement, along with other inconsistencies in the data, may be due in part to the small sample utilized at the eighth grade level. Due to the increased pressure of school activities on both teachers and students, it was exceedingly difficult to find teachers who would volunteer their classes for the experiment.

The high rate of correct responses of untrained students to skills 1, 2, 3, 6, 8, and 9 would lead one to deemphasize the teaching of these skills at the eighth grade. It may be recalled that in the analysis of the hierarchy at grade 5 it was recommended that the training relative to skills 1, 2, 3, and 9 be discontinued because of the high rate of correct responses by untrained students.

Skill 10 proved to be a difficult skill at grades 2, 5, and 11, yet at grade 8 it was one of the most widely held skills. The most likely explanation is that the items on the test that tap knowledge of this skill were too easy and thus inappropriate at this grade level.

Hierarchy Analysis for Grade 11

Table 8 gives the percentage breakdown at the eleventh grade. The profile of percentages is presented in Figure 4. The results do not appear to be consistent with past findings, especially among the low SES students. Once again, this is probably due to the lack of subjects willing to take part in the study. This most likely also accounts for data inconsistencies relative to training which, while appearing effective among high SES students, instead appeared to be a negative factor among the low SES ones.

Skills 1 through 5 enjoyed a high degree of success while skill 6 was found most difficult to comprehend. Since skill 6 was easily mastered at grades 5 and 8, we can only conclude that the level of difficulty of items measuring this skill far exceeded the difficulty level of other items on the test. On the other hand, unusually easy items might account for the great success that eleventh grade students showed with skill 11, a skill which was quite difficult at all other grade levels.

The value of the Spearman rank order correlation coefficient between the hierarchy orders for high and low SES untrained students is 0.83. Once again we find a high relationship between the two skill orderings.

Summary

Training in listening was most effective at grades 2 and 5 with very little impact at grades 8 and 11. It appears that by the time students reach the intermediate grades they already possess many of the skills isolated for this study. This hypothesis is supported by the data presented in Table 9, a summary table in which the eleven

listening skills have been grouped according to the percentage of students who demonstrate knowledge of their use at the four grade levels.

At the eighth grade level only skill 11, identifying sequence ambiguities, was missed by more than two-thirds of both high and low SES students. Of moderate difficulty for low SES students was skill 5, identifying the stated main idea. Even though many students at the eleventh grade level demonstrated some difficulty with skill 6, predicting the sequence of thought, skill 9, inferring the main ideas from specifics, and skill 10, judging logical validity, one should be somewhat suspicious of these findings in light of the fact that at the fifth and eighth grade levels these difficulties did not exist.

With regard to the listening skills, there does appear to be a hierarchy which is most discernable at grades 2 and 5. When students reach grades 8 and 11, there is a leveling off of skill performance at the upper percentage of success levels. This implies an understanding of these skills which training cannot increase appreciably.

The data from this study does not exactly conform to the skill hierarchy developed from the 1968 pilot study. The reasons for this could vary from chance fluctuation to item difficulty. If the questions for a specific skill were easy, then this skill would appear spuriously high in the hierarchy. On the other hand, difficult questions could make a simple skill appear to be very difficult to learn. Although great effort had gone into developing a test of uniform difficulty, until further studies are done, we cannot be assured that this was truly the case.

However, despite some deviations, a fairly consistent pattern did emerge. Based on that pattern, we would recommend consideration of the following new hierarchical ordering of these skills: 2, 1, 3, 4, 7, 5, 6, 9, 8, 10, 11. Although clear distinctions among several of the skills in the middle of the hierarchy were more difficult to discern, and in spite of some more pronounced changes, the general resemblance of the proposed reordering to the hypothesized one is ~~most interesting~~ worth noting.

Table 1

Analysis of Variance on Total Skill Scores

Grade 2

Source of Variation	Degrees of Freedom	Mean Square	F-Ratio	Decision
SES	1	.15	.02	Not Significant
High SES				
Sex	1	6.13	.79	Not Significant
Training for males	1	43.04	5.51*	Significant
Training for females	1	66.41	8.51*	Significant
Low SES				
Sex	1	2.04	.26	Not Significant
Training for males	1	49.55	6.35*	Significant
Training for females	1	115.16	14.75*	Significant
Error	336	7.81		

*Significant at the 0.05 level.

Table 1A

Mean Skill Scores for Grade 2

	Trained	Untrained
High SES		
Males	6,4	4.9
Females	6.9	5.1
Low SES		
Males	6.3	4.7
Females	6.4	4.0

Variables

SES	High	- 5.7	Low	- 5.6
Sex	Males	- 5.6	Females	- 5.7
Training	Untrained	- 4.8	Trained	- 6.5

Table 2

Analysis of Variance on Total Skill Scores

Grade 5

Source of Variation	Degrees of Freedom	Mean Square	F-Ratio	Decision
SES	1	39.31	7.97*	Significant
High SES				
Sex	1	2.51	.51	Not Significant
Training for males	1	22.53	4.57*	Significant
Training for females	1	22.83	4.63*	Significant
Low SES				
Sex	1	0.09	.02	Not Significant
Training for males	1	50.28	10.19*	Significant
Training for females	1	9.74	1.97	Not Significant
Error	493	4.93		

*Significant at the 0.05 level.

Table 2A

Mean Skill Scores for Grade 5

	Trained	Untrained
High SES		
Males	9.1	8.4
Females	9.0	8.2
Low SES		
Males	9.0	7.4
Females	8.5	7.9

Variables

SES	High	- 8.8	Low	- 8.2
Sex	Males	- 8.6	Females	8.5
Training	Untrained	- 8.0	Trained	9.0

Table 3

Analysis of Variance on Total Skill Scores

Grade 8

Source of Variation	Degrees of Freedom	Mean Square	F-Ratio	Decision
SES	1	.08	.02	Not Significant
High SES				
Sex	1	.03	.01	Not Significant
Training for males	1	2.95	.95	Not Significant
Training for females	1	15.86	5.11*	Significant
Low SES				
Sex	1	3.77	1.22	Not Significant
Training for males	1	.70	.22	Not Significant
Training for females	1	17.51	5.64*	Significant
Error	251	3.10		

*Significant at the 0.05 level.

Table 3A

Mean Skill Scores for Grade 8

	Trained	Untrained
High SES		
Males	8.1	8.8
Females	7.8	9.1
Low SES		
Males	8.5	8.6
Females	9.1	8.1

Variables

SES	High	- 8.6	Low	- 8.7
Sex	Males	- 8.5	Females	- 8.7
Training	Untrained	- 8.6	Trained	- 8.6

Table 4

Analysis of Variance on Total Skill Scores

Grade 11

Source of Variation	Degrees of Freedom	Mean Square	F-Ratio	Decision
SES	1	67.71	21.56*	Significant
High SES				
Sex	1	12.51	3.98*	Significant
Training for males	1	17.27	5.49*	Significant
Training for females	1	0.54	.17	Not Significant
Low SES				
Sex	1	4.81	1.53	Not Significant
Training for males	1	16.04	5.10*	Significant
Training for females	1	2.75	.87	Not Significant
Error	186	3.14		

*Significant at the 0.05 level.

Table 4A

Mean Skill Scores for Grade 11

	Trained	Untrained
High SES		
Males	9.5	8.2
Females	8.5	8.2
Low SES		
Males	7.3	8.5
Females	7.2	7.7

Variables

SES	High	- 9.0	Low	- 7.8
Sex	Males	- 8.7	Females	- 7.9
Training	Untrained	- 8.1	Trained	- 8.6

Table 5

Percentage of Students Who Demonstrate Success with the Eleven Hierarchical Skills at the Second Grade

Skill as Presented in the Training Program	High SES		Low SES	
	Untrained	Trained	Untrained	Trained
Skill 1--Inferring connotative word meaning	49.5	81.2	42.9	70.8
Skill 2--Identifying mood	70.7	89.9	55.6	86.7
Skill 3--Providing examples by detail	48.5	66.7	50.8	69.9
Skill 4--Reinstating a sequence of ideas	59.6	65.2	50.8	77.9
Skill 5--Identifying the stated main idea	41.4	65.2	38.1	52.2
Skill 6--Predicting the sequence of thought	39.4	44.9	31.7	39.8
Skill 7--Inferring speaker's or writer's purpose	62.6	69.6	50.8	58.4
Skill 8--Applying standards to judge persuasion	41.4	68.1	28.6	65.5
Skill 9--Inferring the main ideas from specifics	45.5	50.7	42.9	48.7
Skill 10--Judging logical validity	29.3	20.3	31.7	23.0
Skill 11--Identifying sequence ambiguities	12.1	43.5	12.7	41.6
Value of Q	130.36	130.44	60.14	185.44
Sample Size	99	69	63	113

Profile of Percentages for Trained and Untrained Students over the Eleven Skill Hierarchy (Grade 2)

Figure 1

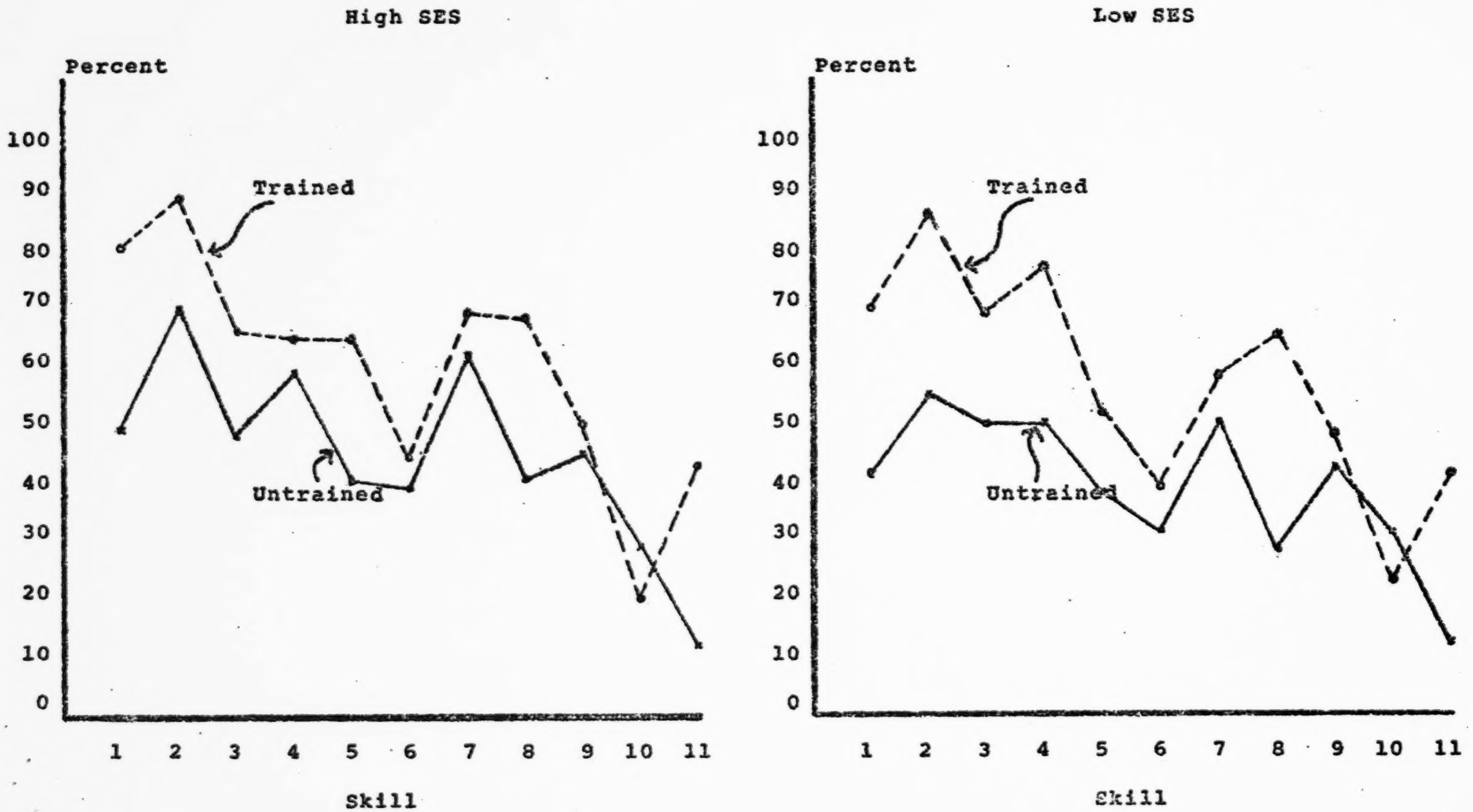


Table 6

Percentage of Students Who Demonstrate Success with the Eleven Hierarchical Skills at the Fifth Grade

Skill as Presented in the Training Program	High SES		Low SES	
	Untrained	Trained	Untrained	Trained
Skill 1--Inferring connotative word meaning	88.4	95.5	90.9	97.6
Skill 2--Identifying mood	96.1	98.5	94.3	96.5
Skill 3--Providing examples by detail	86.8	93.0	92.0	85.9
Skill 4--Reinstating a sequence of ideas	81.4	87.9	69.3	89.4
Skill 5--Identifying the stated main idea	75.2	85.9	68.2	69.4
Skill 6--Predicting the sequence of thought	78.3	81.9	70.5	82.4
Skill 7--Inferring speaker's or writer's purpose	79.1	83.4	62.5	84.7
Skill 8--Applying standards to judge persuasion	71.3	75.9	55.7	57.6
Skill 9--Inferring the main ideas from specifics	79.1	83.9	75.0	84.7
Skill 10--Judging logical validity	62.8	58.3	50.0	62.4
Skill 11--Identifying sequence ambiguities	31.8	62.8	35.2	63.5
Value of Q	262.84	247.89	165.43	118.48
Sample Size	129	199	88	85

Profile of Percentages for Trained and Untrained
Students over the Eleven Skill Hierarchy
(Grade 5)

Figure 2

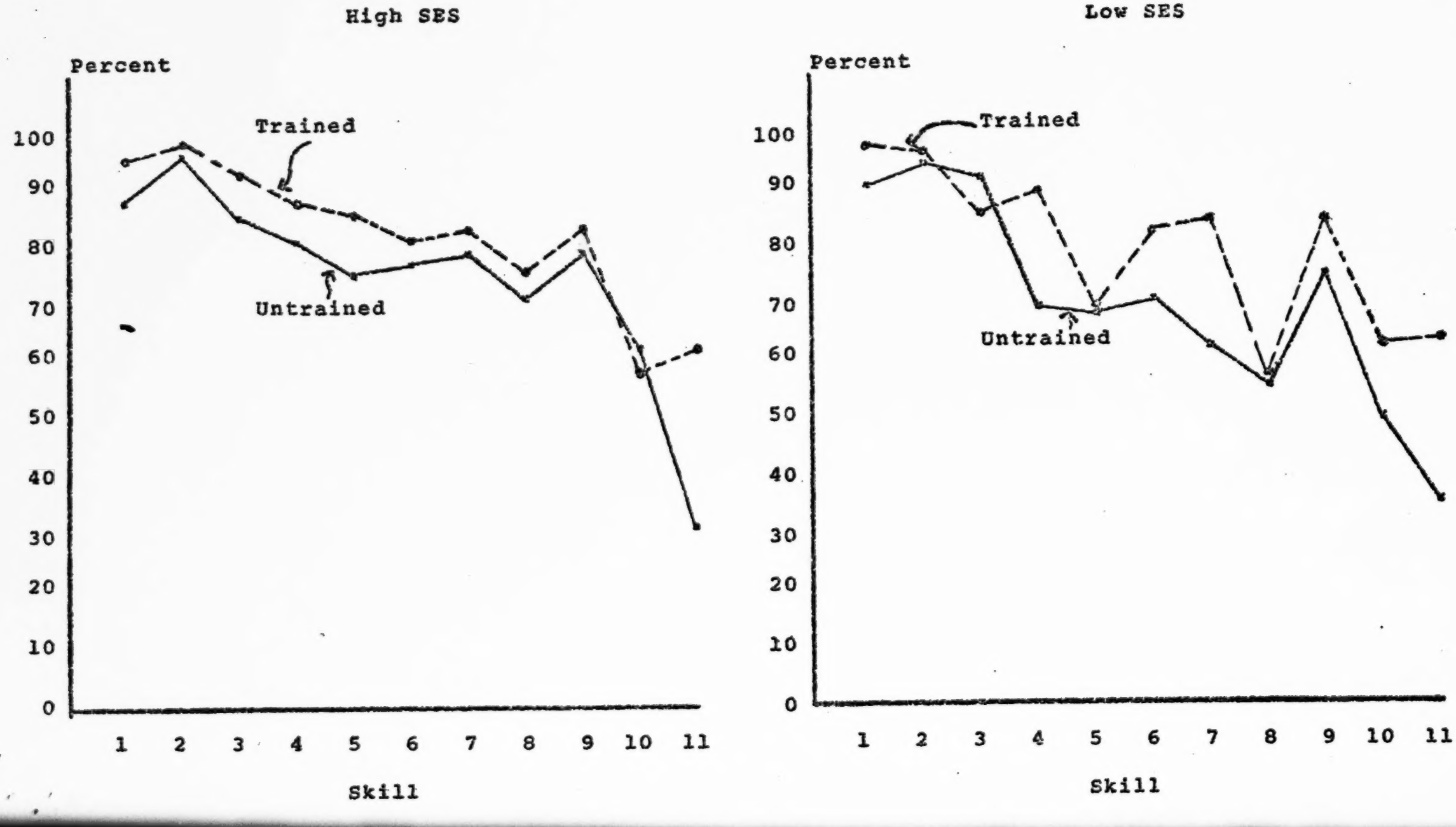


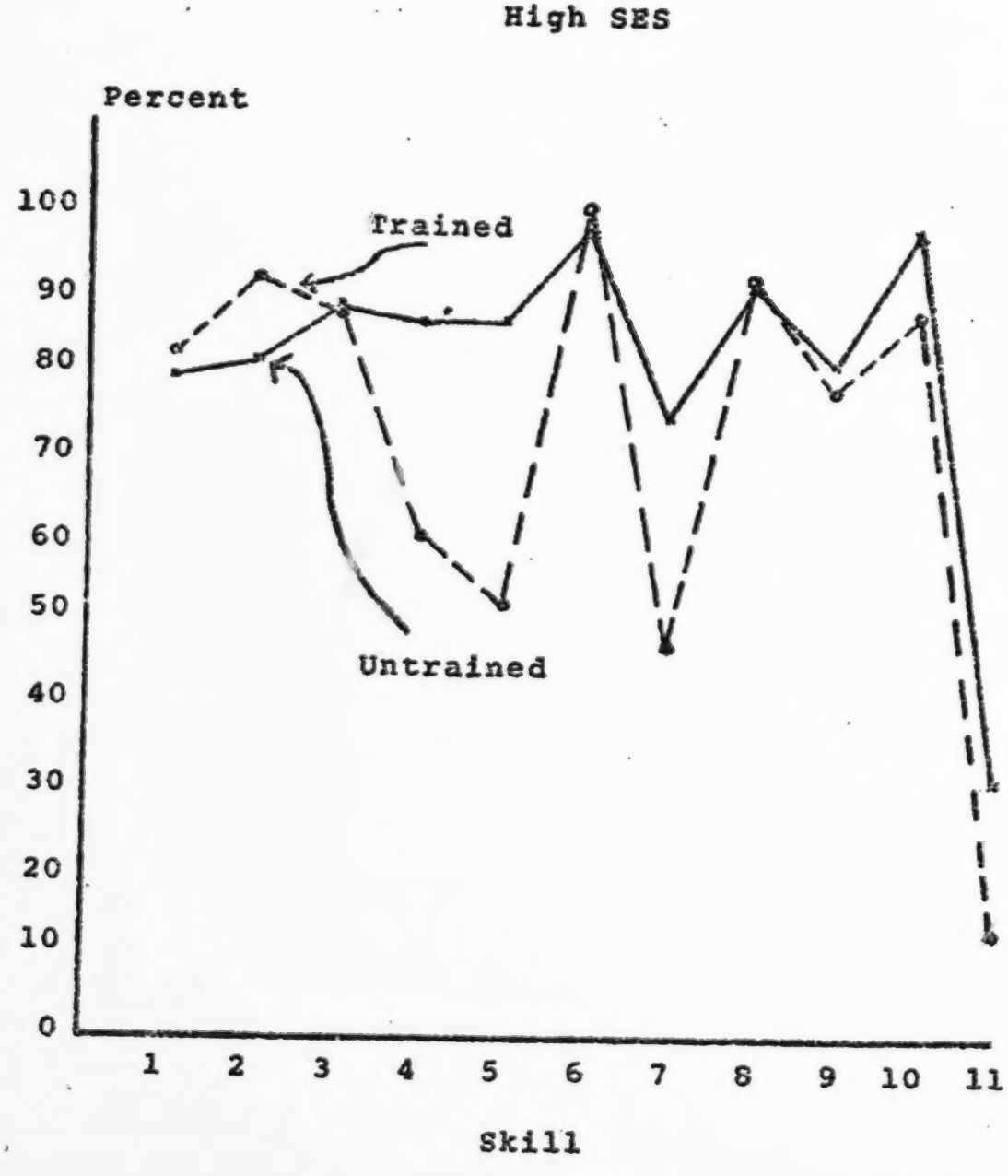
Table 7

Percentage of Students Who Demonstrate Success with the Eleven Hierarchical Skills at the Eighth Grade

Skill as Presented in the Training Program	High SES		Low SES	
	Untrained	Trained	Untrained	Trained
Skill 1--Inferring connotative word meaning	79.5	82.6	85.8	81.8
Skill 2--Identifying mood	81.8	91.3	90.0	95.5
Skill 3--Providing examples by detail	88.6	87.0	95.0	90.2
Skill 4--Reinstating a sequence of ideas	86.4	60.9	68.3	72.7
Skill 5--Identifying the stated main idea	86.4	52.2	65.0	75.8
Skill 6--Predicting the sequence of thought	97.7	100.0	91.7	96.2
Skill 7--Inferring speaker's or writer's purpose	75.0	47.8	68.3	68.2
Skill 8--Applying standards to judge persuasion	90.9	91.3	81.7	85.6
Skill 9--Inferring the main ideas from specifics	81.8	78.3	75.0	70.5
Skill 10--Judging logical validity	97.7	87.0	90.0	95.5
Skill 11--Identifying sequence ambiguities	31.8	13.0	30.0	45.5
Value of Q	109.11	74.75	125.68	204.99
Sample Size	44	23	60	132

Profile of Percentages for Trained and Untrained Students over the Eleven Skill Hierarchy (Grade 8)

Figure 3



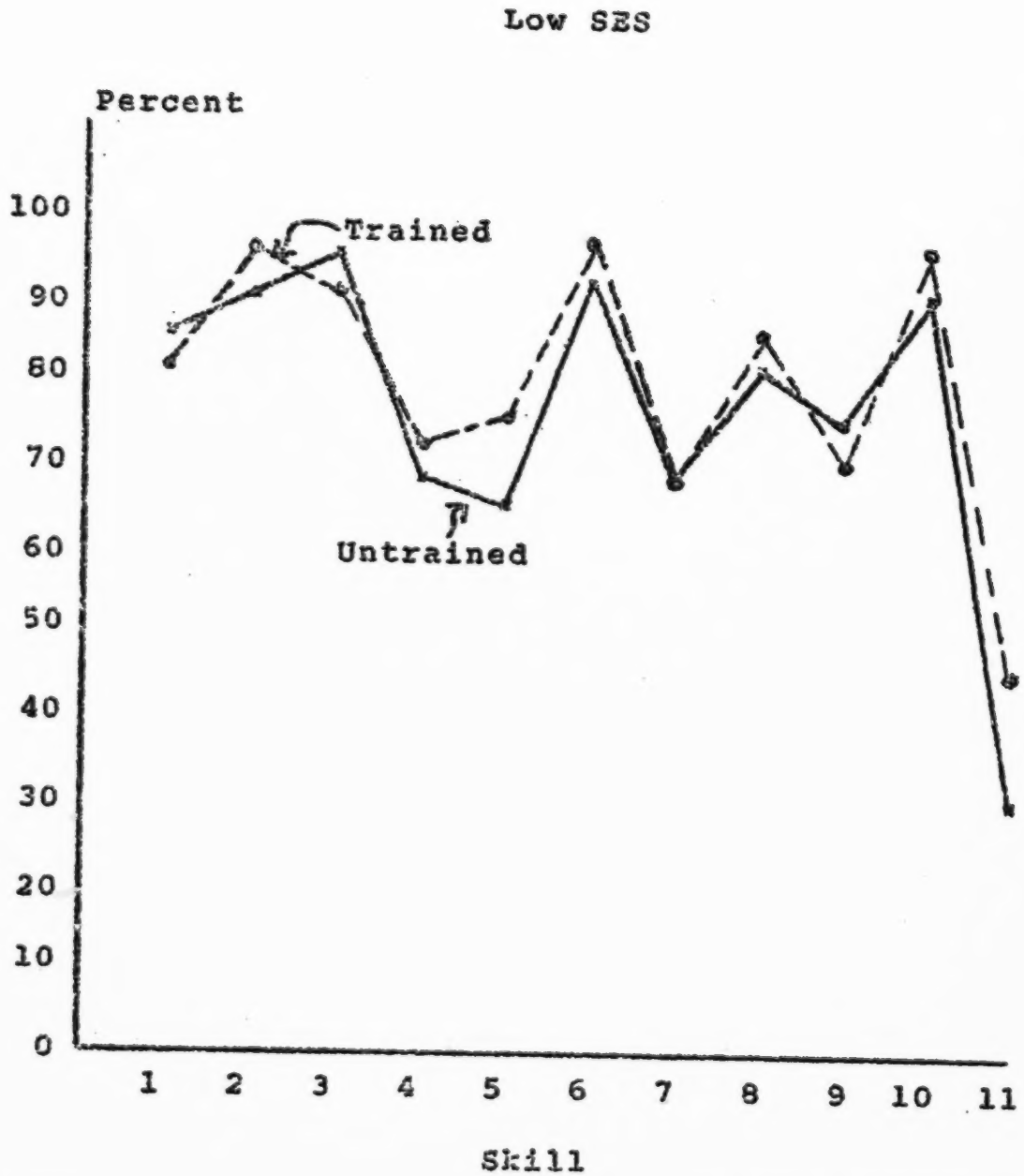


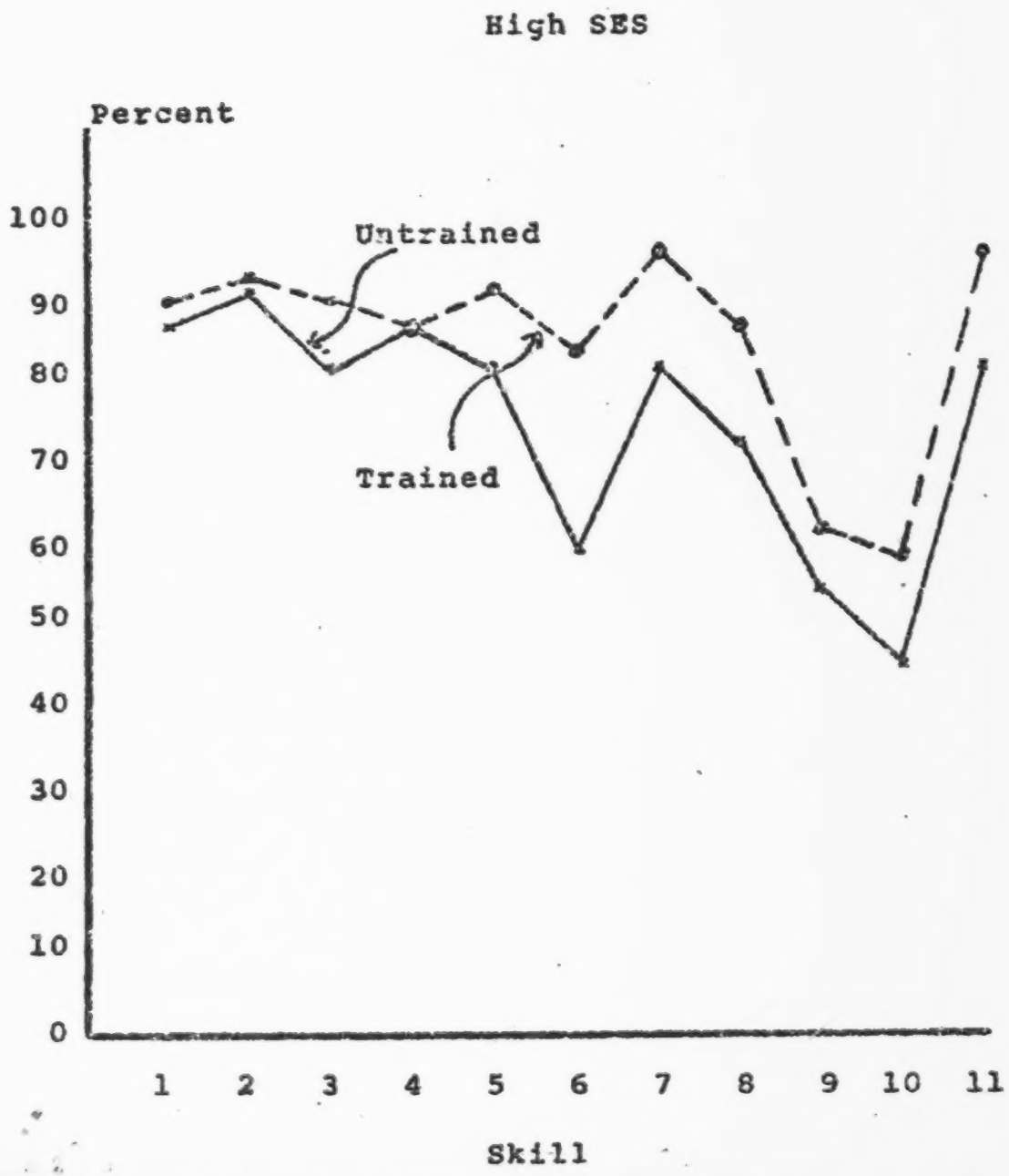
Table 8

Percentage of Students Who Demonstrate Success with the Eleven Hierarchical Skills at the Eleventh Grade

Skill as Presented in the Training Program	High SES		Low SES	
	Untrained	Trained	Untrained	Trained
Skill 1--Inferring connotative word meaning	86.4	89.6	74.0	62.5
Skill 2--Identifying mood	90.9	92.5	94.5	87.5
Skill 3--Providing examples by detail	81.8	89.6	75.3	78.1
Skill 4--Reinstating a sequence of ideas	86.4	86.6	84.9	81.3
Skill 5--Identifying the stated main idea	81.8	91.0	87.7	68.8
Skill 6--Predicting the sequence of thought	59.1	83.6	64.4	46.9
Skill 7--Inferring the speaker's or writer's purpose	81.8	95.5	80.8	78.1
Skill 8--Applying the standards to judge persuasion	72.7	86.6	70.4	81.3
Skill 9--Inferring the main ideas from specifics	54.5	61.2	41.4	40.6
Skill 10--Judging logical validity	45.5	58.2	49.3	34.4
Skill 11--Identifying sequence ambiguities	81.8	95.5	83.6	68.8
Value of Q	27.18	90.27	103.56	52.43
Sample Size	22	67	73	32

Profile of Percentages for Trained and Untrained
Students over the Eleven Skill Hierarchy
(Grade 11)

Figure 4



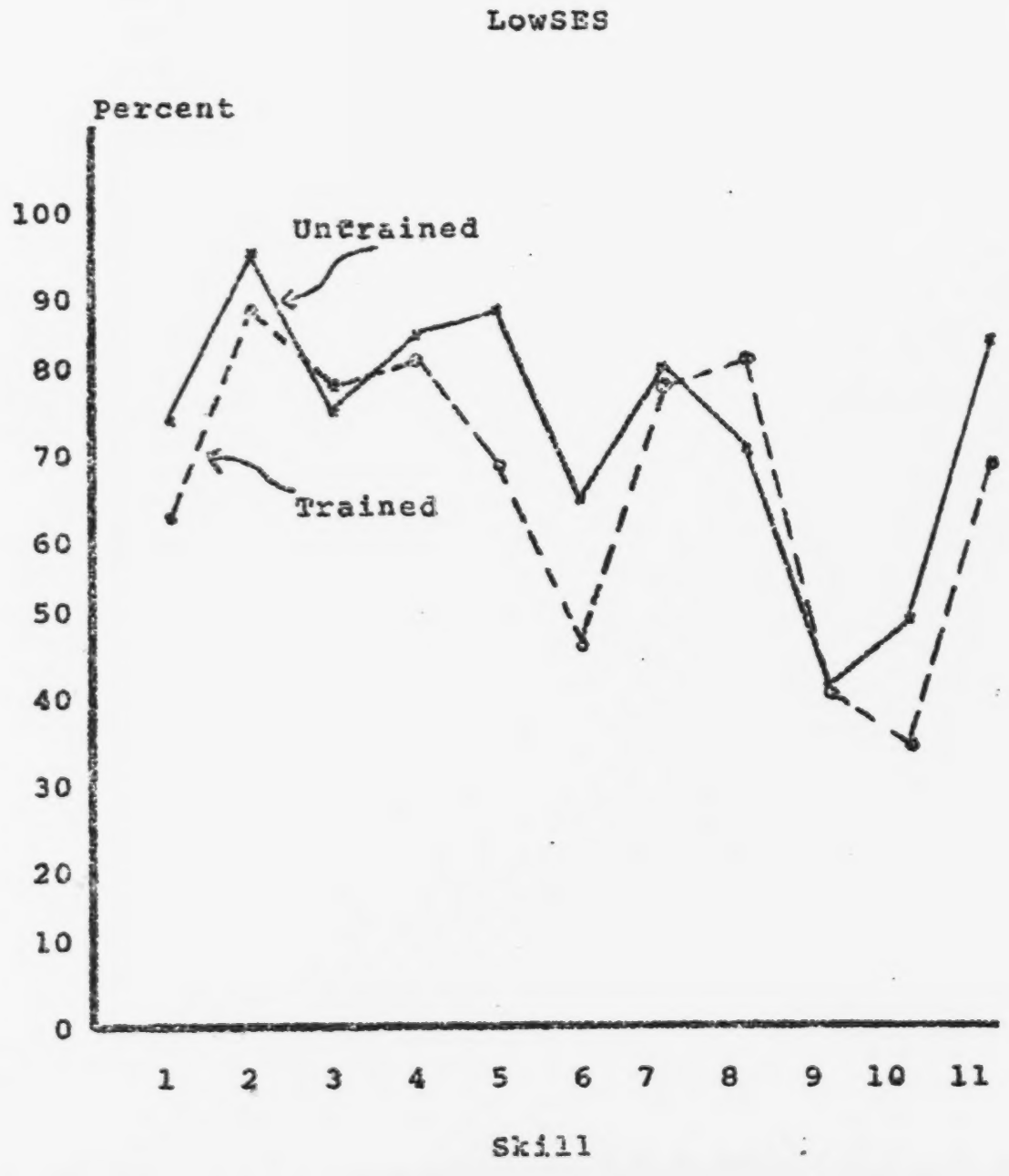


Table 9

Summary Grouping of Skills According to the Percentage of Students in the Untrained Conditions Who Demonstrated Knowledge of their Use.

Grade	Percent Showing Knowledge of Skill	Skills for Low SES Untrained Students	Skills for High SES Untrained Students
2	0 to $33\frac{1}{3}$	6, 8, 10, 11	1, 3, 4, 5, 6, 7, 8, 9
	$33\frac{1}{3}$ to $66\frac{2}{3}$	1, 2, 3, 4, 5, 7, 9	2
	$66\frac{2}{3}$ to 100		
5	0 to $33\frac{1}{3}$		11
	$33\frac{1}{3}$ to $66\frac{2}{3}$	7, 8, 10, 11	
	$66\frac{2}{3}$ to 100	1, 2, 3, 4, 5, 6, 9	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
8	0 to $33\frac{1}{3}$	11	11
	$33\frac{1}{3}$ to $66\frac{2}{3}$	5	
	$66\frac{2}{3}$ to 100	1, 2, 3, 4, 6, 7, 8, 9, 10	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
11	0 to $33\frac{1}{3}$		
	$33\frac{1}{3}$ to $66\frac{2}{3}$	6, 9, 10	6, 9, 10
	$66\frac{2}{3}$ to 100	1, 2, 3, 4, 5, 7, 8, 11	1, 2, 3, 4, 5, 7, 8, 11

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